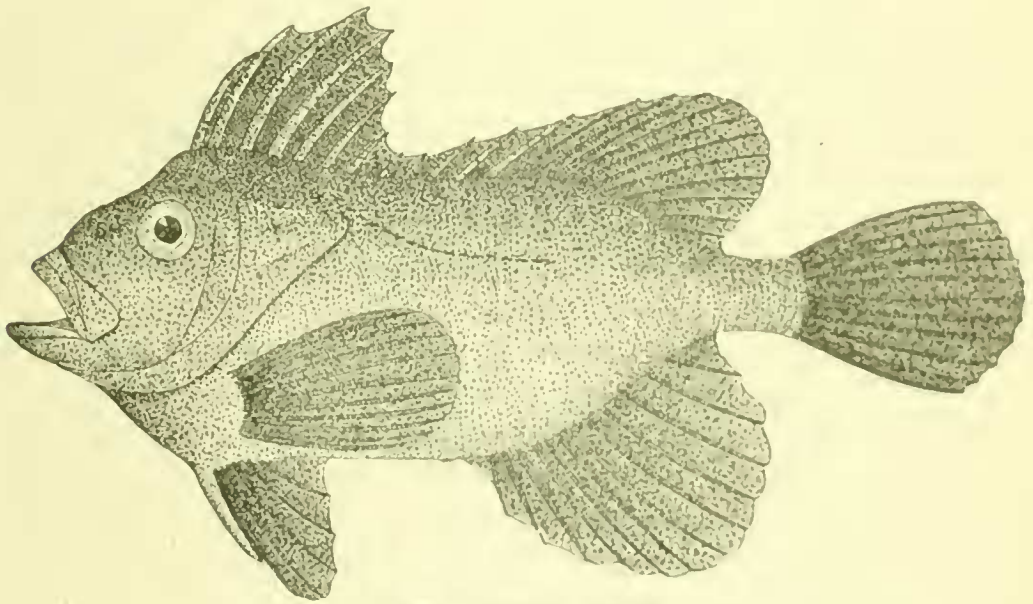


ON THE GENUS GNATHANACANTHUS OF BLEEKER.

BY  
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I.

In 1855 (over thirty-five years ago), Dr. Bleeker introduced into scientific literature a remarkable genus of fishes under the name *Gnathanacanthus* for a species (*G. goetzi*) found in Van Diemens Land, and referred it to the family *Cataphracti*. Subsequently, in several memoirs, he referred it to the family *Scorpanoidei*.\* Nevertheless, it was overlooked by Dr. Günther and has been neglected by all recent authors.



GNATHANACANTHUS GOETZI.

In 1876, Dr. Günther proposed the name *Holoxenus* for a fish (*H. cutaneus*), also found in Van Diemens Land or Tasmania, and referred it to the family *Cirrhitidae*. Dr. Günther added, "This is one of the most singular fishes of the Tasmanian fauna. At the first glance the observer is inclined to refer it to the Scorpanidae or Pediculati: but there is no bony stay for the preoperculum, which is not armed, and the fore limb is not pediculated. Its nearest allies are evidently the *Cirrhitidae*."

In 1876, Dr. Bleeker demonstrated the identity of *Holoxenus* with *Gnathanacanthus*, and claimed that he was right in referring the genus

\* One of these memoirs was published in 1876, and a notice is in The Zoölogical Record for 1876 (Pisces, p. 15), immediately following the abstracted diagnosis of *Holoxenus*. In that notice appears "*Gnathanacanthus* (type 2 *G. goetzi*, Blkr., sp. n. ♀, not yet described, D.  $\frac{1}{2}$  A.  $\frac{3}{4}$ ), p. 299." *Gnathanacanthus goetzi*, as already indicated, was described and illustrated twenty years before.

to the Cataphracti, and especially the *Scorpenoidei* in the following terms:

“La chaîne sousorbitaire y est en effet complète et s'articule avec le préopercule, mais les os sont rudimentaires en ce sens, qu'ils forment des plaques très-minces, dont le postérieure, de forme oblongue et de presque la longueur de l'orbite, se rétrécit en arrière pour s'y articuler avec le préopercule vers le milieu de la hauteur de son bord postérieur.”

In 1878, Count Castelnau noticed a fish which he referred to a new genus called *Beridia* or *Baridia* (*B. flava*),\* and which he referred to the family *Triglidae*, with the following explanation:

“This new genus belongs to the *Triglidae*, and its spinous dorsal being rather less developed than the soft, ought probably to be placed in the group *Cottina*, but the general form is very different from all the other fishes of *Triglidae*, and is more like some sorts of *Gobiidae*.”

In 1879, the present author, in a brief summary of the progress of Vertebrate Zoölogy in 1878, referred to *Beridia* in the following terms:

“Quite a large number of new genera of fishes have been proposed, but several of them are unquestionably the result of imperfect knowledge or erroneous ideas, and among such may be mentioned those named by Count Castelnau (1), *Brisbania* and (2) *Baridia* or *Beridia*. The former was proposed for a fish occurring in the Brisbane River, and is undoubtedly identical with *Megalops*, while the latter is the same as *Gnathanacanthus*, long before described by Bleeker.” †

In 1883, Mr. Robert M. Johnson, in an ably compiled catalogue of the fishes of Tasmania, enumerates *Holoxenus cutaneus* as one of the species of *Triglidae*, and added the following comments:

“I have not seen the above, but I have good reason for supposing that the fish, not otherwise mentioned, known as the *Velvet fish*, is probably the same, although the spinous characters are not in agreement with those of *H. cutaneus*.”

A description is then given of the *Velvet fish*, and it is added, “Should it prove to be a distinct species I propose for it the name *Holoxenus Güntheri*.” ‡

## II.

The nominal genera and species thus introduced are undoubtedly congeneric. Whether they are based on the same species is not so clear. The differences of the radial formula are considerable, viz:

	D.	A.	C.	P.
<i>Gnathanacanthus Gatzl</i> .....	7   5   11	3 9	.....	.....
<i>Holoxenus cutaneus</i> .....	7   3   10	[3].9	12	.....
<i>Beridia flava</i> .....	§8   3   10	2.8	12	10
<i>Holoxenus Güntheri</i> .....	8   5   10	3.9	12-13	.....

\* On the plate (2) the name is printed *Baridia flava*.

† Ann. Rec. Sc. and Ind. 1878, p. 458, 1879.

‡ Papers Royal Soc. Tasm., 1882, pp. 114, 115, 1883.

§ In specific diagnosis, 7 spines; in generic, 8; in figure, 8.

The spines intervening between the anterior and posterior elevated portions of the dorsal appear to be very slender and short, and it is possible that two or three may have been overlooked, and that also anal spines may have been passed over. For the present, at least, it is uncertain whether there is more than one species of *Gnathanacanthus*, and possibly, even the doubt is against the probability of there being more than one. This is a problem for the Tasmanian and Victorian naturalists to elucidate.

### III.

The color of the *Gnathanacanthus Gatzii* was described by Bleeker as brownish red; of *Holoxenus cutaneus* by Günther as "uniform whitish (in spirits);" and of *Beridia flava* by Castelnau as "entirely of a beautiful orange color." Mr. Johnston has informed us that in *H. Güntheri*, "the color, when fresh, is a uniform deep purple, sometimes more or less marbled with yellow, which probably changes to white in spirits." In this connection, a statement by Castelnau is especially noteworthy. "Having received it in a dry state [he] put it in warm water to extend some parts of the fins; the water became almost immediately of the same beautiful yellow color as the fish." It therefore seems that the pigments of the fish are soluble, as are those of the feathers of certain birds—especially the musophagids—and consequently discrepancies as to shade of color are of little account.

### IV.

The facts respecting the history are summarized in the following synonymy :

#### GNATHANACANTHUS.

##### *Synonymy.*

- =*Gnathanacanthus* Bleeker, Verhand. K. Akad. Wet., (Amsterdam), v. 2, Visschen Van Diemensland, p. 21, pl. f. 1, 1855.
- =*Holoxenus* Günther, Ann. and Mag. Nat. Hist. (1), v. 17, p. 393, 1876; Macleay, Proc. Linn. Soc. N. S. Wales, v. 5, p. 438, 1881;\* (Cat., p. 138.)
- =*Beridia* Castelnau, Proc. Linn. Soc., N. S. Wales, v. 2, p. 229, 1878; Macleay Proc. Linn. Soc., N. S. Wales, v. 5, p. 592, 1881;† (Cat., p. 227.)
- =*Baridia* Castelnau, Proc. Linn. Soc., N. S. Wales, v. 2, pl. 2.

The genus is not mentioned by Dr. Günther in his Introduction.

### V.

Which of the propositions as to the relationships of *Gnathanacanthus* is true? Is it one of the *Scorpanida*, or one of the *Cirritida*—or is it the representative of an independent family?

The plates accompanying Bleeker's and Castelnau's memoirs show characters quite different from those manifest in any Scorpanids or

\* Referred to the *Scorpanida*.

† Referred to the *Cottina*.

Cirritids. The eyes are near the proximal ends of the preopercular bones, the proscapular bones are very much inclined backwards, and must consequently connect with the posterotemporals at decided angles, the pectorals are comparatively narrow and consequently the actinosts and coracoid elements must be modified, and the ventrals are subbrachial. Notwithstanding Bleeker's remarks, I must regard it as doubtful whether the normal cataphract structure is manifest, that is, whether the *third* suborbital is developed as a stay. In view of the combination of characters exemplified the genus appears to be referable to neither the Scorpaenids nor the Cirritids, and it probably represents a peculiar family to be called *Gnathanacanthidae*. It may be most nearly related to the Congiopodids or Agriopodids and the Patæcids. It is very desirable that the questions thus submitted should be investigated, and to rectify the nomenclature and to direct attention to a peculiarly interesting type, unduly neglected, this article is presented. The author would be greatly obliged to any one who would favor him (or rather the U. S. National Museum) with specimens or with any bones of the fish.

## VI.

Inasmuch as *Gnathanacanthus* (or *Holoxenus*), *Congiopodus* (or *Agriopus*), and *Patæcus* have been widely separated and associated with very different forms, I venture to express my belief that that they will be found to be related, and may even constitute a single superfamily. They agree superficially in the pauciradiate simple rayed pectorals, advanced spinous dorsalis, and position of eyes. I trust that skeletons or specimens to be skeletonized of the several types may be sent to the U. S. National Museum for examination.